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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of : Examiner:  
JEROME R. MAHONEY : MING CHOW  
Serial No. 09/653,658 : Art Unit: 2645  
Filing Date: August 31, 2002 : Attorney Docket No.  
For: VOICE ACTIVATED/VOICE : IVC-103A  
RESPONSIVE ITEM LOCATOR

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APPEAL BRIEF

This brief is being filed in response to the Final  
Rejection of February 14, 2002 in the above-referenced case.

I. REAL PARTY IN INTEREST

The inventor of the instant patent application is  
Jerome R. Mahoney. Stated inventor has assigned all rights  
in the instant patent application to iVoice, Inc. The  
assignment has been forwarded to the United States Patent  
and Trademark Office on August 31, 2000 for recordation.

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## II. RELATED APPEALS AND INTERFERENCES

There are no related appeals and no related interferences.

## II. STATUS OF CLAIMS

The following is a list of all claims that have been presented in this application throughout its history and the status of these claims:

<u>Claims</u>	<u>Status</u>
1-10	Initially filed, now cancelled
11-39	Pending - these are the appealed claims.

## IV. STATUS OF AMENDMENTS

No amendment has been filed after the Final Rejection.

## V. SUMMARY OF THE INVENTION

In conjunction with this section, Figure 1 is attached hereto as Exhibit B, and is referred to in the numbering of the elements. The present invention is directed to a voice activated/voice responsive item locator. The figure selected shows general software features and functional features. Thus, the present invention device includes a central processor 1, which may be an internal or external component,

i.e. within a single unit or at a separate location from audio receivers and transmitters.

The system may be preprogrammed with a user being required to follow concise instructions for activation and operation, or may be programmable to alter, add or enhance ease or methods of use. A limited access code for manager input 3 of user instructions may be required for security checks. In any event, manager inputs 3 shall include functional selections and inputs of items and their locations, with provision for subsequent access for modifications.

The programming of the manager inputs 3 may include direct keyboard, voice, etc. Security capabilities may include voice identification or user security code systems. Once the system has been programmed for use, the user operation unit(s) 5 provide functional access, which may be passive wherein a user performs some operation to activate the system, or may be active wherein an internal mechanism may automatically activate the system.

Once the system has been activated and a user has stated the necessary words of input to activate the device, recognition/non-recognition response 7 results from processing the user inputs to central processor 1. Audio

and video response unit(s) 9 provide feedback 11 to the user, either by answering the inquiry, conditionally defaulting by asking for a repeat or a restate of the question, or fully defaulting by directing a user to another location to obtain help form an individual.

The voice activated/voice responsive item locator system present invention enables a user to speak into the system and have the system respond with location information for an item requested by the user.

## VI. ISSUES

The basic issues are as follows:

- (a) Is claim 11 indefinite under 35 U.S.C. §112 for failing to point out and distinctly claim the subject matter which applicant regards as the invention? Are the Term "likelihood" and the phrase "most likely clarified by the dictionary definitions of the words?"
- (b) Are claims 11 through 20 and 26 through 30, obvious under 35 U.S.C. §103(a) as being unpatentable over Perrone (6,157,705) in view of Stubley (6,092,045)? Would one of ordinary skill

in the art take the voice control of a server of Perrone and include the hidden Markov models (HMMs) of Stubley to read on the continuous speech recognition engine utilizing tokens of raw acoustic signals representing utterances or words and matches these against a set of models and then relies on likelihood to select a most likely model to decode signals for interpretation? Could this present invention be made under this combination of disclosures, under the teachings of Perrone?

- (c) Are claims 21 through 23 obvious under 35 U.S.C. §103(a) over Perrone as modified by Stubley and further in view of Cohen et al. (6,507,352)? Would one of ordinary skill in the art take the voice control of a server using HMMs and modify it by using item locations of Cohen?
- (d) Is claim 24 obvious under 35 U.S.C. §103(a) over Perrone as modified by Stubley and further in view of Reed (6,394,278)? Would one of ordinary skill in the art take the voice control of a server using HMMs and modify it by using bin numbers of

Reed?

- (e) Is claim 25 obvious under 35 U.S.C. §103(a) over Perrone as modified by Stubley and further in view of Radican (6,148,291)? Would one of ordinary skill in the art take the voice control of a server using HMMs and modify it by using row and slot locations of Radican?

#### VII. GROUPING OF CLAIMS

In this appeal, claims 11 through 20, and 26 through 30 are directed to an item locator system with hardware and software to support both voice activation and voice responsive capabilities for location feedback to locate one of more specific goods in a retail store.

Claims 21 through 23 are directed to an item locator system with hardware and software to support both voice activation and voice responsive capabilities for location feedback to locate aisle number and shelf location.

Claim 24 is directed to an item locator system with hardware and software to support both voice activation and voice responsive capabilities for location feedback to locate bin number location.

Claim 25 is directed to an item locator system with hardware and software to support both voice activation and voice responsive capabilities for location feedback to locate row and slot location.

These above four groupings are recommended by the Applicant for purposes of appeal.

### VIII. ARGUMENTS

#### (a) Claim Rejection - 35 U.S.C. §112 Rejection

The Examiner rejected claim 11 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. He stated that the "term" likelihood and the phrase "most likely" are not clearly defined. He concluded that it is unclear how "likely" the "likelihood" and "most likely" refer.

In response, the Applicant submits that the term "likelihood" and the phrase "most likely" obtain clarity by the definition of the words. Webster's Ninth New Collegiate Dictionary defines "likelihood" as probability, "likely" as "of such a nature or circumstance to make

something probable", and "most" as "to the greatest or highest degree." Therefore, the definition of the term "likelihood" is "probability" and the definition of the phrase "most likely" is "the greatest or highest probability to make something probable." The greatest probability to make something probable is that voice input which most closely or has greatest probability of matching the established database words.

(b) Perrone and Stubley et al. Rejection

Claims 11 through 20, and 26 through 30 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Perrone (6,157,705) in view of Stubley et al. (6,092,045). The Examiner stated that regarding claim 11 section (a), Figure 5 of Perrone displays a support structure for physically supporting the system as claimed. Regarding claim 11 (b), he stated that the speech recognizer of Perrone is the claimed speech recognition digital signal processor of the present invention.

However, he further stated that Perrone fails to teach a continuous speech recognition utilizing tokens of raw acoustic signals representing utterances or words and matches these against a set of models and then relies upon



likelihood to select a most likely model to decode signals for interpretation. The Examiner determined that the hidden Markov models (HMMs) of Stubley et al. reads on the continuous speech recognition engine of the present invention.

Regarding claim 11 (c ), the Examiner stated that Perrone teaches integrate speech recognition software in a computer program, which he asserted is the microprocessor of the present invention.

Regarding claim 11 (d), the Examiner continued that the hardware element shown on Figure 1 of Perrone is the sufficient programming and circuitry contained within said programmable microprocessor. Furthermore, he stated that Perrone teaches showing the locations a that class of rooms, which is the claimed item location of the present invention.

Regarding claim 11 (e), the Examiner stated that Perrone teaches the use of an interface with the computer being a microphone. He concluded that the microphone of Perrone is the claimed voice input means of the present invention.

Regarding claim 11 (f), the Examiner stated that Perrone teaches bootstrap instructions and other constant information, which are the operational inputs and control

inputs of the present invention. Additionally, he stated that voice commands of a server in Perrone is the voice recognition vocabulary of the present invention.

Regarding claim 11 (g), the Examiner asserted that the multimedia shown on Figure 1A (#4) of Perrone is a computer monitor that is the visual feedback of the present invention.

Regarding claim 12, the Examiner stated that Perrone teaches that the page has graphical and text elements. Regarding claim 13, he stated that the rejections of claim 11(d) and 11 (g) apply to claim 13.

Regarding claim 14, the Examiner put forth that Perrone teaches ROM, which is used to store bootstrap instruction. He further stated that bootstrap instructions inherently include diagnostic and system programming. Furthermore, he stated that Perrone teaches control of a server, which he determined is inherent that the server is a remote unit to a client.

Regarding claim 15, the Examiner stated that the rejection of claim 11(e) applies of claim 15.

Regarding claim 16, the Examiner stated that Perrone teaches a keyboard, which he concluded, is the secured manual control panel of the present invention. Moreover, he

started that Perrone teaches classes of rooms and a catalog shopping application. He asserted that catalog shopping application and location of that class of rooms of Perrone is the item and location data of the present invention.

Regarding claim 17, he stated that the rejection of claim 16 applies to claim 17. Furthermore, Perrone also teaches that each of the underline text items in the utility menu column is a hyperlink to a web page that presents information relating to the underlined text item. Moreover, he stated the rejection of claim 11(e) teaching the microphone also applies to claim 17, as well as the rejection of claim 11(g) teaching the monitor also applying to claim 17.

Regarding claim 18, the Examiner stated that Perrone teaches hardware that receives a digital signal, processes the digital signal to analog, and amplifies the analog signal and lay the analog signal through one of more loudspeakers.

Regarding claim 19, the Examiner stated that Perrone teaches an interactive voice response system, which is coupled to a speech recognizer and to the server. He concluded that is inherent that the speech recognizer much have speech signal recognizer and speech signal interpreter

and is a continuous speech exchange system.

Regarding claim 20, the Examiner stated that Perrone teaches that the control software receives a spoken utterance to recognize a resource identifier in the utterance. He concluded that the software must be embedded (on system memory). He asserted that this teaching reads on the claimed voice driven interface and claimed operational instructions. Furthermore, Perrone also teaches showing the locations of that class of rooms, which he maintained is the locator function of the present invention. Moreover, he stated that Perrone also teaches various claimed options and establishes data communication channel and establish voice communication channel, which he asserted are the default functions of the present invention.

Regarding claim 26, the Examiner stated that Perrone teaches a telephone handset off hook and dials a predetermined telephone that identifies the IVR system.

Regarding claim 27, the Examiner stated that Perrone teaches a computer system, which is the claimed portable structure.

Regarding claims 28 through 30, the Examiner stated that the modified system of Perrone in view of Stubley et al. as stated in claims 11, 16 in 18 failed to teach speech

recognition engine using HMMs for its continuous speech recognition engine. He asserted that the rejection of claim 11(b) as stated above applies to claims 28 through 30. He maintained that it would have been obvious to one skilled in the art at the time the invention was made to modify Perrone to have the speech recognition using HMMs for its continuous speech recognition engine as taught by Stubley et al. so that the modified system of Perrone would be able to support HMMs to system users.

In response, the Applicant submits that the combination of Perrone and Stubley et al. fails to establish a prima facie showing of obviousness for the following reasons. First, the Perrone reference is different art from the present invention. Second, there is no suggestion, teaching or need, expressed or implied, in either the Perrone patent or the Stubley et al. patent to utilize the teachings of the other. Third, the Perrone disclosure teaches away from the present invention. And fourth, even if the combination were valid, the combination of the teachings of the two inventions would produce an object, which is different from the present invention.

First, the Perrone reference is different art from the

present invention. The Perrone art is directed to voice control of a server for ordering products through the Internet where virtual presentation occurs. The types of products that are classified are retrieved in broad categories. For example, in response to a request for a class of rooms, all rooms having a given rate are diagrammed (col. 19, lines 33 -35). The disclosure has no way of finding the location of a given room. Moreover, there is a many to one ratio of what is located for a specific inquiry. On the other hand, the present invention is directed to the location of specific consumer products. As stated in the specification, "(b)y item is meant a place or thing that a user desires to locate" page 30, lines 1-2. This is different from a class of items, wherein Webster's Ninth Collegiate Dictionary defines class as "a group, set, or kind sharing common attributes." Thus, the Perrone disclosure involves broad classifications that do not show the location of a specific person or product, much less a consumer product. Therefore, the Perrone patent is different art from the present invention.

Second, there is no suggestion, teaching or need, expressed or implied, in either the Perrone patent or the Stubley et al. patent to utilize the teachings of the other.

The Perrone patent has its own Functional Natural Language Phrase Interactive Voice Response System, by using an "IVR application program 42 under control of OS 40 . . . is responsible for . . . receiving and interpreting caller inputs and responding to caller inputs" col. 7 lines 21 through 26. Thus, there is no motivation or reason to substitute the speech recognition system of Stubley et al. in the Perrone system.

Third, the Perrone disclosure teaches away from the present invention. In finding locations, it is inherent that the Perrone disclosure uses databases that are retrievable by class or category. The Perrone system asks questions based upon category of hotel and room rates. When a user selects category, a diagram of the hotel's rooms based upon rate selection, is displayed. Thus, all rooms of a specified class are displayed. However, the present invention is directed more toward a single display of a location. When a user requests coffee, a specific location for coffee is provided. The present invention is primarily for locating items, i.e., it uses item databases which correlate an item with a specific location for a user to view, retrieve or purchase a product. Thus the Perrone patent teaches away from the present invention of locating

specific items.

And fourth, even if the combination were valid, the combination of the teachings of the two inventions, nevertheless, would produce a system, which is different from the present invention. The Perrone disclosure teaches broad locations of a class of rooms wherein many rooms are located for a specific inquiry. The present invention relates to a specific location for an item. The combination of Perrone and Stubley et al., even if it were valid, would return locations of object by class. For example, all vegetables that are yellow might be located under the combination of the two references. However, the location of canned corn would not be specifically located under the combination of the two references. Thus, if the combination of the two disclosures were used, there would be many locations returned in a specific inquiry, and with an auditory response of the present invention, would be difficult for a user to process. Therefore, the combination of Perrone and Stubley et al. would produce a system, which is different from the present invention.

(c) Perrone, Stubley et al. and Cohen et al. Rejection

Regarding claims 21 through 23, the Examiner rejected



the claims as being unpatentable over Perrone and Stubley et al. as applied to claim 11 above, and in view of Cohen et al. (6,507,352). He stated that Perrone in view of Stubley et al. failed to teach providing an item aisle and shelf location. He stated that Cohen et al. teaches aisle number and shelf location being displayed on the display monitor. He determined that it would have been obvious to one skilled in the art at the time the invention was made to modify Perrone and Stubley et al. to provide aisle location as taught by Cohen et al. such that the modified system of Perrone and Stubley et al. would be able to support the aisle and shelf locations to system users.

In response, the Applicant reasserts all the arguments in section (b) above in reference to the combination of Perrone and Stubley et al., and also submits that the additional combination with Cohen et al. fails to establish a prima facie showing of obviousness for the following reasons. First, the Cohen et al. patent teaches away from the present invention. And second, there is no motivation to combine the art of Perrone and Cohen.

First, the Cohen et al. patent teaches away from the present invention. While auditory output is taught in Cohen

et al., auditory input is not taught, nor would be possible. The nature of the transaction with the main database in the Cohen et al. disclosure is a selection from numerous data sources, which is displayed on computer monitors. The nature of the selections is such that it would be extremely difficult for a user to remember all the selections, which could be made audibly, if it were part of the invention. Thus, Cohen et al. teaches away from auditory presentation of output of the present invention.

And second, there is no suggestion, teaching or need, expressed or implied, in either the Perrone patent or the Cohen et al. patent to utilize the teachings of the other. The Perrone disclosure is directed to locating general classes of information. The Cohen et al. patent is directed toward displaying retrieved database information on monitors, wherein a user selects from numerous displays of information one desires. The Cohen et al. patent displays information by department while the Perrone patent displays information by class. Since Perrone is a broad structure, there would be no motivation to use the system of retail department databases of the Cohen et al. patent, and vice versa. The Applicant submits that one skilled in the art of general classification databases would not turn to the art

of detailed retail department databases for information on how to display data.

(d) Perrone, Stubley et al. and Reed Rejection

Regarding claim 24, the Examiner rejected the claims as being unpatentable over Perrone and Stubley et al. as applied to claim 11 above, and in view of Reed (6,394,278).

He stated that Perrone in view of Stubley et al. failed to teach providing an item bin number. He stated that Reed teaches bin number being displayed on the display screen. He determined that it would have been obvious to one skilled in the art at the time the invention was made to modify Perrone and Stubley et al. to provide bin number as taught by Reed such that the modified system of Perrone and Stubley et al. would be able to support the bin number to the system users.

In response, the Applicant reasserts all the arguments in section (b) above in reference to the combination of Perrone and Stubley et al., and also submits that the additional combination with Reed fails to establish a prima facie showing of obviousness because there is no motivation to combine the art of Perrone and Reed.

There is no suggestion, teaching or need, expressed or

implied, in either the Perrone patent or the Reed patent to utilize the teachings of the other. The Perrone disclosure is directed to locating general classes of information. The Reed patent is directed toward transmitting destination information of addressee information on postal letters and parcels. The Reed patents displays information by addressee bin number while the Perrone patent displays information by class. Since Perrone is a broad structure, there would be no motivation to use the system of a postal database of the Reed system, and vice versa. The Applicant submits that one skilled in the art of general classification databases would not turn to the art of detailed postal addressee databases for information on how to locate desired information.

(e) Perrone, Stublely et al. and Radican Rejection

Regarding claim 25, the Examiner rejected the claims as being unpatentable over Perrone and Stublely et al. as applied to claim 11 above, and in view of Radican(6,148,291). He stated that Perrone in view of Stublely et al. failed to teach providing an item row and slot location. Radican teaches row and slot designation being displayed. He determined that it would have been obvious to one skilled in the art at the time the invention

was made to modify Perrone and Stubley et al. to provide row and slot location as taught by Radican such that the modified system of Perrone and Stubley et al. would be able to support the row and slot location to the system users.

In response, the Applicant reasserts all the arguments in section (b) above in reference to the combination of Perrone and Stubley et al., and also submits that the additional combination with Radican fails to establish a prima facie showing of obviousness because there is no motivation to combine the art of Perrone and Radican.

There is no suggestion, teaching or need, expressed or implied, in either the Perrone patent or the Radican patent to utilize the teachings of the other. The Perrone disclosure is directed to locating general classes of information. The Radican disclosure is directed toward locating inventory movement throughout a factory and/or factories, wherein there are visual reports displayed on computer monitors. Since the Perrone patent includes a broad classification structure, there would be no motivation to use the system of an inventory tracking database of the Radican system, and vice versa. The Applicant submits that one skilled in the art of general classification database

would not turn to the art of detailed inventory movement database for information on how to locate desired information.

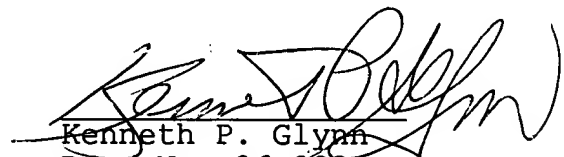
CONCLUSION

The Applicant believes that it should be clear to the Board of Appeals that the currently pending Claims 11 through 30 are allowable because neither Perrone, in view of Stublely et al; in view of Stublely et al. and Cohen et al.; in view of Stublely et al. and Reed; and in view of Stublely et al. and Radican; suggest or render obvious the present invention. The rejections under 35 U.S.C. §112, second paragraph and 35 U.S.C. §103(a) should be reversed. The appealed claims are attached hereto as exhibit A while Figure 1 is attached hereto as Exhibit B.

Thank you.

Respectfully submitted,

Date: April 9, 2003

  
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EXHIBIT A  
The Appealed Claims

31. An item locator system having both voice activation and voice responsive capabilities for location feedback to locate one or more specific goods in a retail store, which comprises:

- a.) a support structure, for physically supporting said system at one or more locations, and functionally containing or connected to the following components:
- b.) a continuous speech recognition digital signal processor (DSP), said continuous speech recognition engine utilizes tokens of raw acoustic signals representing utterances or words and matches these against a set of models and then relies upon likelihood to select a most likely

- model to decode signals for interpretation;
- c.) a programmable microprocessor interfaced with said speech recognition DSP;
  - d.) sufficient programming and circuitry contained within said programmable microprocessor to provide for voice activation and voice recognition and response to provide item location to a user;
  - e.) voice input means connected to said speech recognition DSP;
  - f.) memory storage means connected to said programmable microprocessor for storage of operational inputs, control inputs, voice



recognition vocabulary for storage of command  
match and execute functions;

- g.) at least one user feedback unit and connection  
from said programmable microprocessor to said at  
least one user feedback unit, said at least one  
user feedback unit adapted to provide feedback  
selected from the group consisting of audio  
feedback, visual feedback and combinations  
thereof, to a user in response to an item location  
query.

12. The system of claim 11 wherein said user feedback unit

includes visual display means for viewing visual feedback in the form of text, or map or a combination thereof.

13. The system of claim 11 wherein said user feedback unit includes sufficient hardware and software to provide audio feedback to a user in response to recognizable voice input.

14. The system of claim 11 wherein said memory storage means further includes flash ROM storage and provides for remote diagnostics and system programming.

15. The system of claim 11 wherein said voice input means

includes a microphone.

16. The system of claim 11 which further includes a secured manual control panel for input and management of item and location data into said system.

17. The system of claim 16 wherein said manual control panel further contains a keypad and menu for operation and programming options, a microphone, a screen for input and feedback display.

18. The system of claim 11 which additional components

further includes an audio feedback component which includes audio feedback hardware and software adapter to audibly respond to recognizable voice input, including digital-to-analog conversion and an output speaker.

19. The system of claim 11 wherein said DSP includes a continuous speech recognition engine having a continuous speech signal recognizer and a continuous speech signal interpreter.

20. The system of claim 11 wherein said programming and

circuitry within said programmable microprocessor includes embedded, voice driven interface for control of operational instructions, system locator function operations, and option and default functions.

21. The system of claim 11 wherein said response to provide item location to a user includes aisle location.

22. The system of claim 11 wherein said response to provide item location to a user includes shelf location.

23. The system of claim 11 wherein said response to provide item location to a user includes aisle and shelf location.

24. The system of claim 11 wherein said response to provide item location to a user includes bin number.

25. The system of claim 11 wherein said response to provide item location to a user includes row and slot location.

26. The system of claim 15 wherein said microphone is selected from the group consisting of a receiver handset, headset, and built-in microphone.

27. The system of claim 11 wherein said support structure is a portable support structure.

28. The system of claim 11 wherein said speech recognition engine uses Hidden Markov Models for its continuous speech recognition engine.

29. The system of claim 16 wherein said speech recognition engine uses Hidden Markov Models for its continuous speech recognition engine.

30. The system of claim 18 wherein said speech recognition engine uses Hidden Markov Models for its continuous speech recognition engine.

Exhibit B

